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Electron paramagnetic resonance of Tb 3+ ions in YBa 2Cu 3O 6

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Abstract

The first observation of electron paramagnetic resonance (EPR) of Tb 3+ doped into YBa 2 Cu 3O 6 is reported. EPR is used to determine the local symmetry of the rare-earth ion and to study the effect of suppression of high-T c superconductivity by doping. The distance between the lowest singlets of Tb 3+ ion Δ ≅ 7.1 GHz ≡ 0.24 cm -1 and g-factor g ∥ ≃ 17.9 have been estimated from measurements. Both these parameters are in a good agreement with the corresponding calculated values. No evidence of Tb 4+ ions was found. © 2000 Plenum Publishing Corporation.

Keywords

EPR, Impurities, Rare-earth ions, YBCO